We claim:

1. A metallic heat transfer tube, comprising integral fins formed on an outside of a tube wall between which mutually adjacent fins are provided primary grooves, a root of the fins projecting generally radially outwardly from the tube wall at a base of the primary groove, the grooves having recesses arranged in the area of the base of the grooves, wherein the recesses are designed in the form of re-entrant secondary grooves.

Sub A3 2. The metallic heat transfer tube according to Claim 1, wherein the fins and the primary grooves extend helically.

3. The metallic heat transfer tube according to Claim 1, wherein the fins and the primary grooves extend annularly.

4. The metallic heat transfer tube according to Claim 1, wherein the fins and the primary grooves extend in axial direction.

~~5~~. The metallic heat transfer tube according to Claim 2, 3 or 4, wherein the re-entrant secondary grooves extend with an essentially uniform cross section in direction of the primary grooves.

F3,5

6. The metallic heat transfer tube according to Claim 2, 3 or 4, wherein the cross section of the re-entrant secondary grooves, which extend in direction of the primary grooves, is varied at regular intervals.

F5

~~7. The metallic heat transfer tube according to Claim 2, 3 or 4, wherein the re-entrant secondary grooves extend essentially transversely with respect to the direction of the primary grooves.~~

8. The metallic heat transfer tube according to one of the Claims 1 to 4, wherein the re-entrant secondary grooves expand at a maximum up to 45% of the fin height H.

9. The metallic heat transfer tube according to Claim 8, wherein the re-entrant secondary grooves expand at a maximum up to 20% of the fin height H.

10. The metallic heat transfer tube according to one of the Claims 1 to 4, wherein the fins have a uniform height H.

11. The metallic heat transfer tube according to one of the Claims 1 to 4, wherein tips of the fin are notched.

12. The metallic heat transfer tube according to Claim 10, wherein the fins have an essentially T-shaped cross section.

13. The metallic heat transfer tube according to one of the Claims 1 to 4, wherein the tube has at least one of plain ends and plain center lands.

14. the metallic heat transfer tube according to one of the Claims 1 to 4, wherein the tube is designed as a seamless tube.

Sub A3

15. The metallic heat transfer tube according to one of the Claims 1 to 4, wherein the tube is designed as a tube welded with a longitudinal seam.

16. A method for the manufacture of a heat transfer tube in which the following method steps are carried out:

a) forming helically extending fins on an outer surface of a plain tube by obtaining the fin material through movement of material from the tube wall outwardly by means of a finning process, and advancing the fin tube by one of milling forces and corresponding with the fins being formed, the fins being formed with an increasing height out of non-deformed plain tube material,

b) supporting the plain tube by a mandrel oriented inside thereof,

c) shifting tube material after forming of the fins through radial pressure applied to one of the fin flanks and the transition area at the root of the fin toward the base of the groove to thereby form the re-entrant secondary grooves.

17. The method according to Claim 16 for the manufacture of a heat transfer tube, wherein the re-entrant secondary grooves have an essentially uniform cross section, wherein the radial pressure in the method step c) is created by means of a cylindrical disk having a diameter less than the diameter of the largest rolling disk and a thickness which is at least 50% and at most 80% of the fin pitch T.

18. The method according to Claim 17 for the manufacture of a heat transfer tube wherein the method step c) is followed by the method step d) in which the base of the groove is deformed in places by further radial pressure by means of a gear-like notching disk

having a diameter which is greater than the diameter of the cylindrical disk, at a maximum, however, as great as the diameter of the largest rolling disk, in such a manner that indentations are formed and which are spaced at regular intervals from one another in circumferential direction.

19. The method according to Claim 16 for the manufacture of a heat transfer tube wherein the radial pressure in the method step c) is created by a gear-like notching disk, the diameter of which is less than the diameter of the largest rolling disk, to form spaced-apart indentations, and wherein the method step d) follows so that the re-entrant secondary grooves are formed by a further radial pressure caused by means of a cylindrical finishing rolling disk.

20. The method according to Claim 18, wherein in each case a straight or helically toothed notching disk is used.

21. The method according to Claim 19, wherein in each case a straight or helically toothed notching disk is used.

22. The method according to one of the Claims 17 to 21 for the manufacture of a heat transfer tube, wherein tips of the fins are notched in a further method step e) by radial pressure caused by means of a gear-like notching disk.

23. The method according to Claim 22, wherein the fins tips are flattened to an essentially T-shaped cross section in a method step f) by further radial pressure caused by means of at least one flattening disk.